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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/667,356	09/23/2003	Mikio Sato	00862.023246	3393
5514	7590	05/13/2005	EXAMINER	
FITZPATRICK CELLA HARPER & SCINTO			JONES, JUDSON	
30 ROCKEFELLER PLAZA			ART UNIT	
NEW YORK, NY 10112			PAPER NUMBER	
			2834	

DATE MAILED: 05/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/667,356

Applicant(s)

SATO, MIKIO

Examiner

Judson H. Jones

Art Unit

2834

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4, 7 and 8 is/are rejected.
- 7) ☒ Claim(s) 5 and 6 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09/23/2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |  |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)            |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>092303</u> | 6) <input type="checkbox"/> Other: ____  |

**DETAILED ACTION*****Claim Objections***

Claim 1 is objected to because of the following informalities: The claim is unclear. First the claim recites "to feed a current" and then "a controller to determine the polarity of the current." According to the specification regarding the first embodiment page 9 lines 18-19, "a positive drive current is applied to only all the A-phase coils" and regarding the second embodiment page 14 lines 20-21 "a positive drive current is applied to all the A-phase coils." Thus the polarity of the current applied to the coils is known. According to the specification page 9 lines 20-27, the apparatus determines the direction that the movable member travels when the slight positive drive current is applied. Then, if the movement is in the desired direction, the current to be applied to the coil should be positive. If the movement is not in the desired direction, then the current to be applied to the coil should be negative. The claim makes no distinction between the slight current applied to determine the location of the movable member and the drive current applied to drive the movable member in the desired direction. Applicant needs to write the claim so that the slight test drive current is differentiated from the drive current. Also applicant needs to make clear that the polarity of the current that is determined refers to current to be applied, not to a current that has been applied. Appropriate correction is required.

***Claim Interpretation***

Since no clear mention is made of a slight drive current applied to the coils, the claims are not interpreted to include that limitation. The polarity determined is viewed as being the polarity of the drive current to be applied to the coil.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-4 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kobayashi et al. 4,789,815 in view of Chitayat 4,749,921. Kobayashi et al. discloses a linear motor apparatus with a coil array 44, 45, a driver for each coil, a relatively movable magnet array 34, measurement means 47, 48 and a controller including NOR gates 53, 54 that controls the current flowing through the coils as described in column 6 lines 3-10. Kobayashi et al. discusses the polarity of the coils in column 6 lines 33-37. Kobayashi et al. does not disclose same phase coils. The Kobayashi et al. device is a DC motor with only two coils. Chitayat teaches multiphase coils in column 6 lines 19-23 for a DC motor and teaches in column 7 lines 5-10 that additional coil sets may be added in order to increase the force produced by the motor. Since Chitayat and Kobayashi et al. are from the same field of endeavor it would have been obvious at the time the invention was made for one of ordinary skill in the art to have utilized multiple coils of the same phase in order to increase the force produced by the motor.

In regard to claims 3 and 4, see Kobayashi et al. column 2 lines 31-40.

In regard to claim 7, according Merriam Webster's Collegiate Dictionary Tenth Edition copyright 1997 a stage is a raised platform. Chitayat discloses a stage 14 as shown in figure 4 and as described in column 4 lines 33-37.

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sato et al. 5,757,149 in view of Kobayashi et al. and Chitayat. Sato et al. discloses an exposure apparatus having a reticle stage and a substrate stage as described in column 1 lines 23 ½ to 31 ½ but does not disclose details of the drive motors used for the stages. In column 2 lines 54-57 Sato discloses that linear motors having voice coils or magnets in the stators are used for driving devices and in column 8 lines 1-2 Sato et al. mentions that the linear motors are poly-phase motors. Kobayashi et al. teaches using a DC power supply for a linear motor and teaches controlling the current through a coil as described in column 6 lines 3-10 and teaches determining the polarity of coils in column 6 lines 33-37. Since Sato et al. provides no details on power for a linear motor, it would have been obvious at the time the invention was made for one of ordinary skill in the art to have utilized a DC power supply with control for the polarity of the current to the linear motor as taught by Kobayashi et al. in order to make the linear motor operate as intended. The Kobayashi et al. device is a DC motor with only two coils. Chitayat teaches multiphase coils in column 6 lines 19-23 for a DC motor and teaches in column 7 lines 5-10 that additional coil sets may be added in order to increase the force produced by the motor. Since Sato et al., Chitayat and Kobayashi et al. are from the same field of endeavor it would have been obvious at the time the invention was made for one of ordinary skill in the art to have utilized multiple coils of the same phase in order to increase the force produced by the motor.

***Allowable Subject Matter***

Claims 5 and 6 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

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The following is a statement of reasons for the indication of allowable subject matter:

The prior art of record does not disclose or teach first and second settling with first and second phase angles in combination with the other features of claim 5.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Judson H. Jones whose telephone number is 571-272-2025. The examiner can normally be reached on 8-4:30 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Darren Schuberg can be reached on 571-272-2044. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Judson Jones



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